

12. FORBES, W. A.—Forbes's Final Idea as to the Classification of Birds. *Ibis*, 1884, p. 119.
13. NITZSCH's Pterylography. Ed. Selater. Ray Society, 1867.

EXPLANATION OF PLATE XXXIX.

Myology of *Podica senegalensis*.

- Fig. 1. Patagial muscles. *T.p.*, tensor patagii; *Bi.s*, biceps slip; *Bi*, biceps; *Hu*, tendon attaching tensor patagii to humerus.
2. Muscles of thigh, outer view. *Bi*, Biceps; 1, 2, 3, its three insertions; *g*, gastrocnemius; *t.f.*, tensor fascia, cut and reflected.
3. Muscles of thigh, inner aspect. *Amb*, ambiens; *afc*, accessory femoro-caudal; *st*, semitendinosus; *f.c.*, femoro-caudal; *sm*, semimembranosus.
- 3 a. Insertion of semitendinosus (*st.*) and semimembranosus (*sm.*).
4. Some of the muscles of the shoulder-girdle. *Anc*, Anconæus longus; *Anc'*, its tendinous slip to humerus; *Sc*, scapula; *LD*¹, *LD*², two latissimi dorsi; *D*, deltoid; *Tr*, triceps; *Hu*, humeral head of anconæus.

3. On a Collection of Mammals obtained by Dr. Emin Pasha in Central and Eastern Africa. By OLDFIELD THOMAS, F.Z.S.

[Received June 3, 1890.]

(Plate XL.)

The Mammals now described were collected partly on Dr. Emin's return march from his Equatorial Province, and partly by himself or by friends of his during his stay at Bagamoyo. The former, like the magnificent collection sent over in 1887¹, were presented by him direct to the Natural History Museum, and the latter were given to the Zoological Society, whose Council have in their turn passed them on to the Museum for comparison and preservation.

After the collections described in the previous papers were dispatched in 1887, Dr. Emin continued to investigate the fauna of the region of the great lakes, and it speaks volumes for his energy and enthusiasm that after all the collections then made had most unfortunately been lost, he should, nevertheless, have perseveringly continued to collect all the way down during the painful march from Equatoria to Bagamoyo, and should, under such difficulties, have been able to obtain so many valuable specimens as are here described. Later, while at Bagamoyo, he exercised his influence among his friends, and the specimens recorded as from Monda, in the Nguru Mountains, and from Mandera, a place equidistant from Saadani and Bagamoyo, about 25 miles from the coast, were obtained for him in this way. Those from the latter locality were collected by Lieut. Langheld, to whose friendly exertions we owe some of the most interesting specimens obtained.

Every skin collected during the march has been most carefully labelled by Emin himself, many of the particulars so recorded being

¹ See P. Z. S. 1888, p. 3.

of the utmost value, and increasing very considerably the interest of the specimens.

1. *ANTHROPOPITHECUS TROGLODYTES*, Gm.

a. ♂. "Skull of a full-grown Chimpanzee shot by me in Mssou-gua, shores of Albert Lake, the first specimen ever obtained in these regions."—E.

b. ♀. Skull without mandible. No exact locality.

Specimen *a* is an unusually fine male skull, measuring 198 millim. from occiput to gnathion, and 138 in its greatest bi-zygomatic breadth.

There appears to be no essential difference between it and ordinary West-African Chimpanzee's skulls; and in regard to "*Trogloodytes schweinfurthi*" and "*T. niger* var *marungensis*," I can only repeat my opinion of 1888¹, namely, that the evidence is as yet too meagre for their proper distinction.

2. *HERPESTES GALERA*, Erxl.

♂. Monda, Nguru Mountains.

A remarkably handsome specimen, strongly influenced by erythrism, many of the hairs, especially those on the belly, being wholly or partly of a brilliant rufous colour.

3. *HELOGALE PARVULA UNDULATA*, Peters.

a. ♀. Usambiro, S. Victoria Nyanza. 1/9/89.

b. ♂. Usagara. 22/11/89.

"Iride fusca. Native names (*a*) "Ndjóroro" and (*b*) "Viguiiri." Common in little flocks of from 6 to 10 individuals, running about the fields."—E.

Although, on the whole, I am disposed to agree with Dr. Jentink² as to the specific identity of *H. parvula*, Sund., and *H. undulata*, Peters, yet the difference in the colour of typical examples of each is such as to render it advisable to consider the two as representing different geographical races—a southern semi-tropical, and a northern tropical one respectively.

Dr. Emin's observation as to the gregarious habits of the species is of remarkable interest, and is, I believe, the first observation of the sort made about any member of the family.

4. *RHYNCHOCYON PETERSI*, Bocage.

a. Mandera. 3/90. Coll. Langheld.

The present is the third specimen of this rare species that has been received by the Museum. The first was obtained on the island of Zanzibar by Sir John Kirk in 1884; and a second one, a fine male in spirit, in the Rabai Hills, Mombasa, by the Rev. W. E. Taylor in 1886. All the three agree precisely with the original description given by Prof. du Bocage³, of which an abstract was published by Dr. Günther in his monograph of the genus⁴.

¹ P. Z. S. 1888, p. 5.

² Notes Leyd. Mus. xi. p. 31 (1888).

³ J. Sci. Lisb. vii. p. 159 (1880).

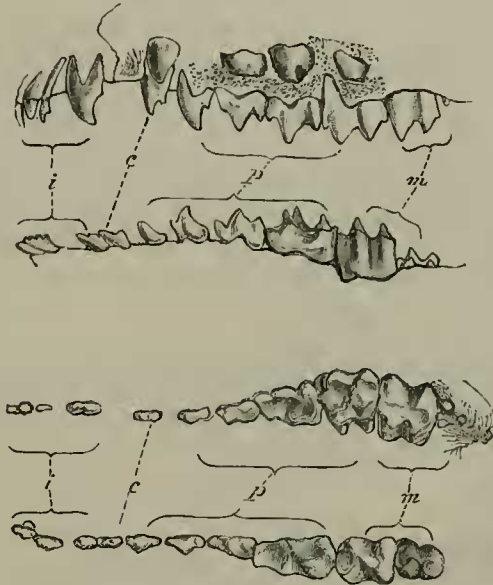
⁴ P. Z. S. 1881, p. 164.

5. PETRODROMUS TETRADACTYLUS, Peters.

a-c. Mander. 3/90. Coll. by Lieut. Langheld.

In this species it is worthy of note that there is a very considerable difference in size between the sexes, a difference so great as at first, with only unsexed specimens for examination, to make one suspect specific distinctness. Thus a male skull in the Museum collection measures 50 millim. in basal length, whilst that of a fully adult female is only 45.

Specimen *c* has its milk-dentition still in place, and a figure of it may be of use. Its interest, however, lies, not in the mere form of the milk-teeth, but in their proving that all the usually received dental



Milk-dentition of *Petrodromus tetradactylus*.
Side and top view of upper and lower teeth.

formulae of the members of the family are wrong in one important essential. So far as I know, without exception, every author has considered that the *Macroscelididae* have three premolars, and three molars above and below, except *Macroscelides brachyrhynchus* and *M. fuscus*, which have four molars below. This last fact might have aroused a suspicion of what is really the case, as proved by the milk-dentition, namely, that in all the members of the family there are four premolars, the last three changing, as is usual, and only two molars in the ordinary forms, the above-mentioned two species having three below.

This is rather a remarkable example of the many mistakes which occur owing to naturalists homologizing teeth from their form alone, for in this case, what is now proved to be P.⁴ is in its shape absolutely molariform, so that it has hitherto always been taken to be M.¹.

In *Rhynchocyon* and *Macroscelides* other specimens in the Museum show the same fact equally clearly and decisively.

The revised formulæ for the three genera will therefore be:—

Rhynchocyon: I. $\frac{0.0.1 \text{ or } 0}{1.2.3}$, C. $\frac{1}{1}$, P. $\frac{1.2.3.4}{1.2.3.4}$, M. $\frac{1.2.0}{1.2.0} \times 2 = 34 \text{ or } 36$.

Petrodromus: I. $\frac{1.2.3}{1.2.3}$, C. $\frac{1}{1}$, P. $\frac{1.2.3.4}{1.2.3.4}$, M. $\frac{1.2.0}{1.2.0} \times 2 = 40$.

Macroscelides: I. $\frac{1.2.3}{1.2.3}$, C. $\frac{1}{1}$, P. $\frac{1.2.3.4}{1.2.3.4}$, M. $\frac{1.2.0}{1.2.3 \text{ or } 0} \times 2 = 40 \text{ or } 42$.

6. MACROSCELIDES RUFESCENS, Peters (?).

a. ♀. Usambiro. 1/9/89.

"Iride nigerrima. This single specimen found amongst the high dry grasses. Runs like a Gerbille. Native name 'Gosso'."—E.

This beautiful little Elephant-Shrew appears to agree in all essential characters with Peters's *M. rufescens*, although it is considerably paler and less rufescent in colour than some of the original specimens of that species now in the Museum. Its colour is in fact more like that shown on the plate of "*M. revoili*," Huet¹, a form which will, I suspect, be found to be specifically identical with the earlier described *M. rufescens*.

7. EPOMOPHORUS MINOR, Dobs.

a. ♂. Kiriamo. 16/5/89.

b-d. ♂ ♀. Bagamoyo. 20/2/90.

"Iride pallide umbrina. 10 to 20 individuals together on cocoa-palms, inside the town of Bagamoyo."—E.

8. EPOMOPHORUS PUSILLUS, Pet.

a. ♂. Kiriamo. 14/5/89.

"Iride pallide umbrina."

9. NYCTINOMUS PUMILUS, Cretzschm.

a, b. ♂ ♀. Usambiro. 9/9/89.

c. ♂. Bagamoyo. 24/1/90.

"Iride fusca. Frequent among the rocks. Native name 'Kantunké.'"—E.

10. ANOMALURUS ORIENTALIS, Peters.

a. Monda, Nguru Mountains.

The present is only the second specimen of this interesting species that has been obtained, the type in the British Museum having remained unique up to the present time. As that type was bought from negroes in the streets of Zanzibar by Fischer, Dr. Emin's example is the first that shows where the species really occurs wild.

A. orientalis is unquestionably very closely allied to the first described species of the genus, *A. fraseri*, Waterh., a native of Fernando Po.

¹ Revoil's 'Fauna et Flore des Pays-Comalis,' pl. 1 (1882).

11. *SCIURUS PALLIATUS*, Peters.*a, b, c.* Monda, Nguru Mountains.12. *SCIURUS RUFOBACHIATUS*, Waterh.*a. ♀.* Buguera. 29/3/89.

"Iride fusco-umbrina. Common in the thick forest on the hill-sides."—E.

13. *SCIURUS PYRRHOPUS ANERYTHRUS*, subsp. nov. (Plate XL.)*a. ♂.* Buguera. 14/3/89. *Type* of variety.*b. ♀.* Buguera. 31/3/89.

"Iride fusca. On trees near watercourses."—E.

For differential characters see below.

Dimensions of *a*, an adult male in skin:—Head and body 185 millim.; tail, without terminal hairs 167, with hairs 196; hind foot, without claws, 40.

The numerous and well-defined colour-variations found in *Sciurus pyrrhopus*, and commented on by Dr. Jentink in his admirable monograph of the African Squirrels¹, have always appeared to me to be of somewhat more than the merely individual value assigned to them by that author, and on laying out the Museum series of the species, 20 in number, I find that the variations are so strictly geographical in their occurrence that they deserve recognition by name.

The following are the geographical races that I would propose to recognize, with short notes on the characters which distinguish them from one another. The specific characters of the whole are given in Dr. Jentink's paper:—

A. S. pyrrhopus leucostigma, Temm.

Rufous extending all along sides, on cheeks, flanks, and outer sides of limbs. Pale lateral line shown up by the darkening of the hairs just external to it, the latter forming in some specimens a distinct blackish line. Belly pure white.

Hab. Region north and west of the Bight of Biafra.

B. S. pyrrhopus erythrogenys, Waterh.

Rufous dull, confined to cheeks, none on flanks or limbs. No darker line on sides. Belly white.

Hab. Island of Fernando Po.

C. S. pyrrhopus typicus, F. Cuv.

Rufous very brilliant, present on face and cheeks, fore and hind limbs, not on flanks. Belly white, often washed with rufous.

Hab. Gaboon and eastward through the great Congo Forest to Monbuttu, Central Africa².

¹ Notes Leyd. Mus. iv. p. 1 (1882).

² The type of this form was said to have come from Fernando Po, but as it had been kept alive as a pet, it may easily have been taken to the island by natives before it came into the hands of the French naturalists. All of the five Fernando Po specimens in the British Museum are of the *erythrogenys* variety.

D. S. pyrrhopus anerythrus, subsp. nov.

No rufous present on head, body, or limbs. Pale lateral lines very indistinct, not shown up by darker external lines. Belly grey, washed with pale orange; the hairs slaty grey basally, and orange distally, none of them pure white.

Hab. Lake-region, S. of Albert Nyanza.

The present is a still further eastward extension of the known range of this species, which had never been recorded out of West Africa until Dr. Emin sent home the two specimens of the typical race from Monbuttu, referred to in the previous paper on his Mammals¹.

14. *SCIURUS CONGICTUS*, Kuhl.

a. ♂. Mrogoro, Usagara. 24/11/89.

"Iride fusca. Native name 'Kifruma.'"—E.

15. *GERBILLUS*, sp. inc.

a. Young. Mugombia, Ugogo. 2/11/89.

Too young for determination.

16. *GERBILLUS NANUS*, Blanf. (?).

a, b. ♂. Ussougo. 3/10/89.

"Iride fusca. Native name 'Nkosso.'"—E.

I am unable to distinguish these specimens from some Abyssinian individuals in the Museum collection, obtained by Mr. Blanford himself at Zoulla: but it is possible that spirit-specimens would show differences not discernible in the dried skins, and, considering the great difference in locality, it would be wiser to accept the determination with some doubt.

The species was originally described from Persia, but the Zoulla specimens are unquestionably identical with the types, now in the Museum.

[*MUS RATTUS*, L.

a. Bagamoyo.]

17. *MUS (ISOMYS) DORSALIS*, Smith.

a. Monda, Nguru Mountains.

18. *MUS (ISOMYS) ABYSSINICUS*, Rüpp.

a. ♂. Gombe, Ikungu. 18/10/89.

19. *MYOSCALOPS*² *ARGENTEO-CINEREUS*, Peters (?).

a, b. Mandera. 3/90. Coll. Langheld.

It is with the greatest hesitation that I place these two specimens under one heading. Externally, no one would doubt but that they

¹ P. Z. S. 1888. p. 9.

² Nom. nov. *Heliophobius*, Peters, 1846, nec Boisduval, Index Meth., Lepidopt. p. 69 (1829).

were simply adult and young of the same animal. But in their skulls, as in other cases in the present family, the age characters are so slight and doubtful that one would at first sight say that the skull of *b* was that of an adult animal; and therefore that it could not possibly be of the same species as the very much larger one of *a*. Furthermore, *b* agrees in every respect, external and cranial (except that it has not the white frontal spot), with the type of *Georychus albifrons*, Gray, in the British Museum; and, on the other hand, *a* agrees in its skull and dentition with that of *G. pallidus*, Gr., which is unquestionably synonymous with Peters's *Heliophobius argenteo-cinereus*. The colour of *G. pallidus*, and, so far as can be judged from the figure and description, that of *H. argenteo-cinereus*, is very much paler than either of Emin's specimens, and this by itself makes it doubtful whether the latter are certainly of the same species. Without further material, however, it would not be safe to separate them on account of their colour alone.

But the difficulty arises owing to the number of the teeth. In Peters's examples, in the type of *G. pallidus*, and in *a* of the present collection there are either five or six cheek-teeth, as in typical *Myoscalops*, while in the *G. albifrons* and in *b* there are only three or four, as in *Georychus*. But the peculiar structure of the posterior palatal region is quite the same in both, as also are the proportions of the digits; and I am therefore induced for the present to look upon the two small specimens as merely younger examples of *M. argenteo-cinereus*, and to suppose that as they got older they would have developed more and more of their posterior molars.

The peculiar way in which the teeth of *Myoscalops* succeed each other behind up to a total of six renders the true homologies of the four cheek-teeth of *Georychus* a little doubtful, and instead of there being three molars and one premolar as is ordinarily supposed, it seems possible that there are really three premolars and one molar, the two molars suppressed being those that only come up in extreme old age in the allied genus *Myoscalops*.

Finally, should the difference in colour already referred to prove of specific value, the type of "*G. pallidus*" would fall under *M. argenteo-cinereus*, while the dark-coloured species would stand as *M. albifrons*, to which both of Emin's specimens would then be referable.

20. *AULACODUS SWINDERNIANUS*, Temm.

a. Monda, Nguru Mountains.

21. *PROCAVIA BOCAGEI*, Gray.

a. ♀. Usambiro. 3/9/89.

"Iride fusco-umbrina. Found on the rocky hills round Usambiro. Native name 'Pembe.'"—E.

This is a very considerable extension of the known range of *P. bocagei*; but Dr. Emin's specimen agrees on the whole so fairly well with the Angolan examples in the Museum that I do not at present feel justified in separating it specifically.

22. *SCOPOPHORUS*, sp. inc.

a. Skin without label, too young for determination.

23. *MANIS TEMMINCKII*, Smuts.

a. Mandera. 3/90. Collected by Lieut. Langheld.

¹ This specimen appears to have an unusually long tail, but as some of the terminal caudal scales have been lost, the exact extent of the variation cannot be recorded.

4. Descriptions of two new Species of the Siluroid Genus

Arges. By G. A. BOULENGER.

[Received May 28, 1890.]

(Plate XLI.)

Leaving aside the two or three species in which a spine is present between the rayed dorsal fin and the caudal, whether exposed and supporting the small adipose fin or partly embedded in the skin, and for which the name *Stygogenes*, Günther, may be retained, I find, upon examination of the material in the British Museum and after perusal of Dr. Steindachner's descriptions, that as many as six species of the genus *Arges* are entitled to distinction. They may be easily identified by means of the following synopsis:—

- | | |
|--|---------------------------------|
| A. First ventral ray about as long as its distance from the posterior extremity of the anal laid against the tail, reaching or nearly reaching the anus. | |
| <i>a.</i> Barbel half the length of the head. | |
| Eye equally distant from posterior nostril and upper border of gill-opening; outer pectoral ray reaching but a little beyond the base of the outer ventral ray | 1. <i>prenadilla</i> , C. & V. |
| Eye nearer the upper border of the gill-opening than to the posterior nostril; outer pectoral ray reaching nearly the extremity of the outer ventral ray | 2. <i>longifilis</i> , Stdr. |
| <i>b.</i> Barbel one third or one fourth the length of the head; eye nearer the upper border of the gill-opening than to the posterior nostril | |
| 3. <i>sabalo</i> , C. & V. | |
| B. First ventral ray exactly as long as its distance from the anal; anal opening nearly equally distant from the extremity of the ventral and the origin of the anal, or a little nearer the former. | |
| <i>a.</i> Barbel half the length of the head. | |
| Eye equally distant from posterior nostril and upper border of gill-opening; outer pectoral ray not reaching the middle of the outer ventral ray | 4. <i>whymperi</i> , sp. n. |
| Eye nearer the upper border of the gill-opening than to the posterior nostril; outer pectoral ray reaching beyond the middle of the outer ventral ray | 5. <i>taczanowskii</i> , sp. n. |
| <i>b.</i> Barbel one third the length of the head; eye nearer the upper border of the gill-opening than to the posterior nostril | |
| 6. <i>peruanus</i> , Stdr. | |